

Remarks

Claims 1-7 and 9-24 are pending in this application. Claim 8 has been cancelled without prejudice or disclaimer.

Kindly consider the following remarks in response to the Office Action dated July 27, 2007.

Objection has been made under 35 U.S.C. 132 (a) because the Office Action alleges new matter has been introduced into the disclosure. More particularly, the Office Action states that the examiner could not find support in the specification for the phrase "in the absence of tin" in Claim 1. Applicant traverses this objection.

The original specification of the application identified above teaches about the background art that applicants have discovered surprising results thereover concerning significant reduction in the formation of coke which accompanies a hydrocarbon cracking reaction.

Page 2 of the specification teaches:

Despite optimized procedures which completely remove the coke, hydrocarbon cracking units, such as steam crackers, are frequently shut down in order to be subjected to fresh decoking cycles (after operating for 20 to 60 days). Furthermore, the oxidizing decoking treatment results in an increase in the catalytic activity of the metal cracking surface, which increases the rate of formation of coke. Thus, with the increase in the number of decoking operations to which the unit is subjected, the operating time decreases and the annual number of decoking operation increases. This long-term effect is technically and economically harmful since the maintenance costs become increasingly burdensome with the age of the unit for a lower annual operating rate.

Page 4, beginning at line 6, further teaches about US Patent No. 5,656,150:

4) Patents US 4,692,243, US 5,565,087, US 5,616,236, US 5,656,150, EP 698,652 and EP 770,665 all relate to a method for reducing the formation of coke in a hydrocarbon cracking tube. This method employs a silicon compound as a mixture with a tin compound. Some improvements have been made to it, such as the use of a reducing gas as carrier fluid for pretreating the cracking tube (Patent US 5,616,236) or the cracking of a desulphurized feedstock (Patent EP 770,665). This type of treatment remains expensive and the long-term effects of the tin on the metallurgy of the cracking tube and in the downstream sections are not known.

Page 5 of the specification teaches:

Surprisingly, it has now been found that an additive composed of a mixture of sulphur compound and of silyl compound can be used to pretreat a hydrocarbon cracking tube in steam and thus to significantly reduce the formation of coke which accompanies the hydrocarbon cracking reaction.

These teachings in the original disclosure convey that the present invention did not teach use of a silicon compound as a mixture with tin compound because methods utilizing such compounds remains expensive and the long term effects of the tin on the metallurgy of the crackling tube and in the downstream sections are not known, so that the present process reduces coking with silicon containing sulfur compounds in the absence of tin.

For these reasons, Applicants respectfully submit that the objection has been overcome and should be withdrawn. Applicants further state that subject matter which might be fairly deduced from the original disclosure is not new matter. See Cardinal of Adrian v. Peerless Wood Products Inc., 185 USPQ 712 (CA6 1975); ex parte Parks, 30 USPQ2d 1234 (POBA).

Claims 1-6, 9-14 and 16-24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Zimmermann et al. (U.S. Patent No. 5,849,176). Claims 7 and 15 have been further rejected under 35 U.S.C. § 103(a) as being unpatentable over Zimmermann et al. (U.S. Patent No. 5,849,176) in view of Reed et al. (U.S. Patent No. 5,656,150). The claims are argued individually and comments set forth in the response to the preceding office action are incorporated hereby reference. The rejections will be treated together because commonly deficient.

Again Applicants point out that the statement noted on page 3 of Applicants' last response says that Zimmerman '176 is directed to materials that are added to the feed stock to be cracked rather than materials used in the pre-treatment stage as is the case in instant claim 1.

The claims recite a process for reducing the coking on the metal walls of a reactor for the cracking of hydrocarbons etc., and on metal walls of a heat exchanger placed subsequent to the cracking reactor comprising the metal surfaces coming into contact with the organic substance to be cracked are "pre-treated" with a stream of steam comprising (1) a non-sulfur containing silicon compound and (2) a non-silicon containing sulfur compound. The specific non-silicon

containing sulfur compound is further specified in the claim. The Zimmermann '176 reference is inapposite to the teachings of the present invention. Paragraph 7 on page 4 of the prior Office Action admits that the teachings of Zimmerman apply to adding compounds "to the feed". The citation relied upon by the examiner is to the summary of the invention and ignores the tenor of the disclosure set forth in Zimmermann '176. The reference is treating the feed stock as exemplified in the first full paragraph in column 3 of the reference. The intent of the reference is directed to treating input materials rather than being directed to treatment of any specific equipment being utilized in the processing of that feed. The requirements of equipment vary relative to materials used in the equipment and the reaction conditions occurring in that equipment.

Page 4 of the present specification discusses the Zimmerman '176 reference. Zimmermann '176 does not teach "pre-treatment" within the context of the invention but only introduction of a material into feed material. The claims are neither anticipated by Zimmerman '176 nor nonobvious in view of Reed '150. Zimmerman '176 does not suggest the combination of the following characteristics of the process of present claim 1:

- **pretreating the metal surfaces (i.e. before the pyrolysis or cracking reactions, but never during these reactions).**
- **with a stream of steam** comprising at least one non-sulphur-containing silicon compound and at least one non-silicon-containing sulphur compound.

On the contrary, the process of Zimmerman '176 consists in **adding to the feed to be cracked** (i.e. during cracking) an **additive composition** (see column 2 lines 29-34), which is a mixture of volatile organic compounds.

Example 9 (column 6 lines 61-67) raised by the Office Action, actually discloses a pre-treatment as in Example 5, i.e. , with tri-methyl-silyl-methyl-mercaptan at 880°C in an equimolar mixture of hydrogen and methane for 60 minutes, but it does not disclose a pretreating with a **stream of steam** comprising one non-sulphur-containing silicon compound and at least one non-silicon-containing sulphur compound.

The steam is only used in Zimmerman '176 at the stage of pyrolysis, i.e., "during the pyrolysis of n-heptane treated with 100 ppm of tri-methyl-silyl-methyl-mercaptan, in the presence of steam as the diluent ($n_{heptane} : n_{H_2O} : 0.5$)". See Example 9 column 6 lines 65-67 and Table 2 "during the pyrolysis of n-heptane in the presence of steam".

But the amounts of compounds introduced by this way in the process of Zimmerman '176 (as mentioned in the present specification page 5 lines 1-4) end up being not insignificant and there is reason to fear **blockages** either in the cracking tube or in the section for treatment of the cracked gases.

Precisely, the risk of blockages is one of the specific problems that present invention aims at solving. See page 4, line 19 to page 5, line 4. The process of present invention has the additional advantage to be easier to install in steam cracking units (see page 6, lines 1-3), as it principally uses steam as carrier gas, the steam being available in steam cracking facilities.

The solution of pre-treatment of present claim 1 is thus neither disclosed nor suggested by Zimmerman '176 or Reed '150.

Claim 1 is thus new and nonobvious. The dependent claims further exemplify the invention, in particular, Claims 7 and 15.

For these reasons, Applicants respectfully submit that the above rejections have been overcome and should be withdrawn.

Applicants incorporate the comments contained on pages 6 and 7 of their last response, pointing out that Reed '150 uses tin and:

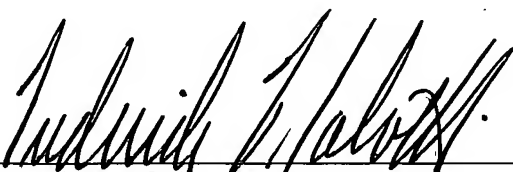
Furthermore, the examples of the present specification clearly set forth unexpected advantages relative to utilization of the method according the present invention.

Comparative exemplification is set forth in the examples which show in Example 1, a 66% reduction in coke, and Example 2, a 27% reduction in coke, and in Example 3, an 18% reduction in coke, in Example 4, a 17% reduction in coke and in Comparative Example 5 relative to preceding Example 2 but without the addition of hexamethyldisiloxane, a 5% increase in coke. Example 6 shows substantial and unexpected inhibition of coke formation in Table 2...

For all the reasons advanced above, Applicants respectfully submit that the Application is in condition for allowance and that action is earnestly solicited.

Respectfully submitted,

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Dated:

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Attachment: Ex parte Parks case

years' worth of license fees, or \$1,260, since the date of its first letter to defendants on September 23, 1933 informing them that they were required to sign a license agreement. By imposing the statutory minimum of \$500 per number of works infringed,³ defendants will be required to pay \$11,500, approximately nine times the amount defendants would have paid in licensing fees. This Court finds that to be an appropriate penalty for the defendants' infringements.

Finally, the Copyright Act provides that the court "in its discretion may allow the recovery of full costs [and] may also award a reasonable attorney's fee to the prevailing party as part of the costs." 17 U.S.C. § 505. In order to encourage suits to redress copyright infringement, attorney fees are awarded to a prevailing plaintiff as a matter of course. *Frost Belt Int'l Recording Enterprises, Inc. v. Cold Chillin' Records*, 758 F.Supp. 131, 140 (S.D.N.Y. 1990). The award of attorney's fees is the rule rather than the exception. *Micromanipulator Co. v. Bough*, 779 F.2d 255, 259 [228 USPQ 443] (5th Cir. 1985). Consequently, this Court finds plaintiffs entitled to reasonable attorney's fees for the prosecution of this action.

The declaration of Marjorie R. Esman submitted by plaintiffs states that plaintiffs incurred \$1,747.00 in attorney's fees for services, including: preparation and service of discovery materials, participation in a scheduling conference; preparation of and filing of a witness and exhibit list; preparation and filing of the motion for summary judgment. The declaration states that plaintiffs incurred costs and expenses in the amount of \$485.37 for filing of the complaint, payments to the process server, reasonable photocopies, and long distance telephone charges. This Court finds these declared attorneys's fees, costs and expenses to be reasonable.

Conclusion

For the reasons set forth above,
IT IS ORDERED that plaintiffs' motion for summary judgment is hereby GRANTED in all respects except plaintiffs' request

³ See *Frank Music Corp. v. Metro-Goldwyn-Mayer Inc.*, (9th Cir.), 886 F.2d 1545 [12 USPQ2d 1412], cert. den'd 110 S.Ct. 1321, 494 U.S. 1017 (1989) which states that the number of works infringed is the appropriate calculation for statutory damages and not the number of infringements. The affidavit of James Hutcherson, investigator for BMI, lists 23 works which were infringed on July 11, 12, 18, and 19, 1992.

for statutory damages in the amount of \$2,500 per claim of infringement. Accordingly, defendants are liable to plaintiffs in the amount of \$11,500 in statutory damages for copyright infringements, \$1,747.00 in attorney's fees, and \$485.37 in costs and expenses. Judgment will be so entered.

U.S. Patent and Trademark Office Board of Patent Appeals and Interferences

Ex parte Parks

No. 93-2740

Decided September 2, 1993

Released January 4, 1994

PATENTS

1. Practice and procedure in Patent and Trademark Office — Reissue — Broader claims sought (§110.1313)

Patentability/Validity — Specification — Written description (§115.1103)

Claims in reissue application for method of determining nitrogen content of sample were improperly rejected on ground of inadequate descriptive support under 35 USC 112, first paragraph, since originally-filed disclosure need only convey, to one of skill in art, that applicant had possession of concept of what is claimed in order to satisfy description requirement, since lack of literal basis in disclosure for limitation that decomposition step of claims be "conducted in the absence of a catalyst" thus does not establish prima facie case for lack of descriptive support, and since it cannot be held that originally-filed disclosure would not have conveyed concept of effecting decomposition at elevated temperature in absence of catalyst.

2. Practice and procedure in Patent and Trademark Office — Reissue — Broader claims sought (§110.1313)

Claims in reissue application for method of determining nitrogen content of sample are overbroad under 35 USC 251, since application was filed more than two years after grant of original patent, since any claim which does not contain negative limitation expressly excluding presence of catalyst in decomposition step of method is broader than original claims, and since claims in question do not accomplish such exclusion by reciting phrase "consisting essentially of" in characterizing decomposition step.

30 USPQ2d

Ex parte Parks

1235

Particular patents — Chemical — Nitrogen detection

4,018,562, Parks and Marietta, chemiluminescent nitrogen detection apparatus and method, claims 81-93 in application for reissue rejected.

Appeal from final rejection of claims in application for reissue of patent (Jill Johnston, primary examiner).

Application of Robert E. Parks and Robert L. Marietta, serial no. 708,810, filed May 31, 1991, continuation of serial no. 340,540, filed April 18, 1989 and abandoned, for reissue of patent no. 4,018,562, granted April 19, 1977 on application serial no. 625,510, filed Oct. 24, 1975 (chemiluminescent nitrogen detection apparatus and method). From final rejection of all claims in application, applicants appeal. Rejection of claims 1-10, 20-22, 55-80, and 94-106 reversed; rejection of claims 81-93 affirmed.

Before Calvert, vice chairman, and Steiner and Tarring, examiners-in-chief.

Steiner, examiner-in-chief.

This is an appeal from the final rejection of claims 1 through 10, 20 through 22 and 55 through 106, all the claims in this application for reissue of Patent No. 4,018,562 (the '562 patent).

THE INVENTION

The claimed invention is a method for determining the nitrogen content of a sample comprising manipulative steps which include decomposing the sample in an oxygen/inert gas atmosphere at an elevated temperature to obtain nitric oxide and causing the generated nitric acid to undergo a chemiluminescent reaction with ozone.

Claims 1, 81 and 94 are illustrative and read as follows:

1. The method for determining the total chemically combined nitrogen content of a sample comprising the steps:

a. decomposing said sample in one step in the presence of an oxygen-rich atmosphere of oxygen and an inert gas and at a temperature sufficiently above 700°C. that substantially all of the chemically bound nitrogen is recovered as nitric oxide (NO), such decomposition being conducted in the absence of a catalyst,

b. causing the nitric oxide produced by such decomposition to undergo a chemiluminescent reaction with ozone, and

c. determining the magnitude of the chemiluminescent reaction to indicate the quantity of chemically combined nitrogen in said sample.

81. A method for determining the total chemically combined nitrogen content of a sample, said method comprising the steps of:

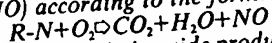
(a) decomposing said sample in one step, said decomposing step consisting essentially of decomposing said sample in the presence of an oxygen-rich atmosphere of oxygen and an inert gas and at a temperature sufficiently above 700°C that substantially all of the chemically bound nitrogen is recovered as nitric acid (NO);

(b) causing the nitric oxide produced by such decomposition to undergo a chemiluminescent reaction with ozone; and

(c) determining the magnitude of the chemiluminescent reaction to indicate the quantity of chemically combined nitrogen in said sample.

94. A method for determining the total chemically combined nitrogen content of a sample, said method comprising the steps of:

(a) decomposing said sample in one step in the presence of an oxygen-rich atmosphere of oxygen and an inert gas and at a temperature sufficiently above 700°C that substantially all of the chemically bound nitrogen is recovered as nitric oxide (NO) according to the formula:



(b) causing the nitric oxide produced by such decomposition to undergo a chemiluminescent reaction with ozone; and

(c) determining the magnitude of the chemiluminescent reaction to indicate the quantity of chemically combined nitrogen in said sample.

THE REJECTIONS

Claims 1 through 10, 20 through 22 and 55 through 80 stand rejected under the first paragraph of 35 U.S.C. 112 for lack of adequate descriptive support. Claims 81 through 106 stand rejected under 35 U.S.C. 251 in that they are broader than the originally patented claims.¹ In addition, all the

¹ The ultimate paragraph of 35 U.S.C. 251 reads as follows:

No reissued patent shall be granted enlarging the scope of the claims of the original patent unless applied for within two years from the grant of the original patent.

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appealed claims stand rejected under 35 U.S.C. 251 for lack of the requisite "error."

The rejection under the first paragraph of 35 U.S.C. 112, the rejection of claims 94 through 106 under 35 U.S.C. 251 as broader than the original claims, and the rejection of all the appealed claims under 35 U.S.C. 251 for lack of the requisite "error" are reversed; the rejection of claims 81 through 93 under 35 U.S.C. 251 as broader than the original claims is affirmed.

OPINION

The Rejection of Claims 1 through 10, 20 through 22 and 55 through 80 under the first paragraph of 35 U.S.C. 112.

The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention on any ground is always upon the examiner. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In rejecting a claim under the first paragraph of 35 U.S.C. 112 for lack of adequate descriptive support, it is incumbent upon the examiner to establish that the originally-filed disclosure would not have reasonably conveyed to one having ordinary skill in the art that an appellant had possession of the now claimed subject matter. *Wang Laboratories, Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). Adequate description under the first paragraph of 35 U.S.C. 112 does not require literal support for the claimed invention. *In re Herschler*, 591 F.2d 693, 200 USPQ 711 (CCPA 1979); *In re Edwards*, 568 F.2d 1349, 196 USPQ 465 (CCPA 1978); *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Rather, it is sufficient if the originally-filed disclosure would have conveyed to one having ordinary skill in the art that an appellant had possession of the concept of what is claimed. *In re Anderson*, 471 F.2d 1237, 176 USPQ 331 (CCPA 1973).

[1] The examiner contends that the rejected claims lack adequate descriptive support because there is "no literal basis for the" claim limitation "in the absence of a catalyst." Clearly, the observation of a lack of literal support does not, in and of itself, establish a *prima facie* case for lack of adequate descriptive support under the first paragraph of 35 U.S.C. 112. *In re Herschler*, *supra*; *In re Edwards*, *supra*; *In re Wertheim*, *supra*.

¹ See page 4 of the Answer, second full paragraph, line 4, and page 7 thereof, last two lines.

The examiner notes that in *Parks v. Fine*, 773 F.2d 1577, 227 USPQ 432 (Fed. Cir. 1985), involving the claimed subject matter, the limitation "in the absence of a catalyst" was considered material. Suffice it to say, no issue under the first paragraph of 35 U.S.C. 112 for lack of adequate descriptive support for the limitation "in the absence of a catalyst" was before the court.

We are not unmindful of the decision in *Ex parte Grasselli*, 231 USPQ 393 (Bd.App. 1983) *aff'd mem.*, 738 F.2d 453 (Fed. Cir. 1984), which involved claims to a process for the ammoxidation of propane or isobutane employing a catalyst "free of uranium and the combination of vanadium and phosphorus." Under the particular facts in that case, it was held that the negative limitation introduced new concepts in violation of the description requirement of the first paragraph of 35 U.S.C. 112, citing *In re Anderson*, *supra*. In the situation before us,¹ it cannot be said that the originally-filed disclosure would not have conveyed to one having ordinary skill in the art that appellants had possession of the concept of conducting the decomposition step generating nitric acid in the absence of a catalyst. See, for example, column 5 of the '562 patent, first paragraph, wherein FIG. 4 is discussed. Pyrolysis temperatures of between 600°C and 700°C, and above 700°C were employed to achieve conversion of chemically bound nitrogen to nitric oxide. Smooth conversion was obtained above 700°C, while the optimum conversion was found to occur above 900°C. Throughout the discussion which would seem to cry out for a catalyst if one were used, no mention is made of a catalyst.⁴

Moreover, according to two declarations by Wentworth, a professor of chemistry at the University of Houston, whose expertise in this particular art has not been challenged, one having ordinary skill in the art would have recognized that the reaction generating nitric oxide, according to the equation disclosed in the '562 patent, is conducted without a catalyst. See *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 19 USPQ2d

¹ Whether the requirement for an adequate written description has been met is a question of fact and, hence, driven by the exigencies of each case. *Wang Laboratories, Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993).

⁴ A "catalyst" normally functions to accelerate a particular reaction. See for example, Hawley, *Condensed Chemical Dictionary*, Tenth Edition, 1981, pp. 205 and 206, copies of which are enclosed for appellants' convenience and made of record.

1111 (Fed. Cir. 1991); *In re Lemin*, 364 F.2d 864, 150 USPQ 546 (CCPA 1966). Thus, it cannot be said that the originally-filed disclosure would not have conveyed to one having ordinary skill in the art the concept of effecting decomposition at an elevated temperature in the absence of a catalyst. *In re Anderson*, *supra*.

Accordingly, the examiner's rejection of claims 1 through 10, 20 through 22 and 55 through 80 under the first paragraph of 35 U.S.C. 112 for lack of adequate descriptive support is reversed.

The Rejection of Claims 81 through 106 under 35 U.S.C. 251 as Broader than the Original Claims.

We initially observe that on page 6 of the Brief,

appellants agree that any claim in the reissue application that does not contain a limitation that means "in the absence of a catalyst" is broader than original claims 1-10 and hence unpatentable under 35 USC 251 (appellants' emphasis).

Claims 81 through 106 do not contain a negative limitation which expressly precludes the presence of a catalyst. However, appellants contend that claims 81 through 93 exclude the presence of a catalyst by virtue of the phrase "consisting essentially of" in characterizing the decomposition step, and that claims 94 through 106 exclude the presence of a catalyst by virtue of the recited equation for the decomposition reaction, which equation does not reflect the presence of a catalyst.

[2] In our opinion, the phrase "consisting essentially of," as employed in claims 81 through 93, limits decomposition to a single step and, in that sense, is redundant since decomposition is performed "in one step." However, it is not apparent and appellants have not explained why the expression "consisting essentially of" excludes the presence of a catalyst during the recited decomposition step.³ It would, therefore, appear that claims 81 through 93 are broader than original claims 1 through 10 and, hence, were properly rejected by the examiner under 35 U.S.C. 251. Accordingly, the examiner's rejection of claims 81 through 93 under 35 U.S.C. 251 is affirmed.

Claims 94 through 106 recite the decomposition reaction in a manner which, according to the Wentworth declarations, means that no catalyst was employed. *In re Lemin*,

supra. Accordingly, claims 94 through 106 would not appear broader than original claims 1 through 10 and, hence, the examiner's rejection of claims 94 through 106 under 35 U.S.C. 251 is reversed.

The Rejection of the Appealed Claims Under 35 U.S.C. 251 for Lack of the Requisite Error.

This rejection is reversed essentially for the reasons advocated by appellants on appeal. We emphasize that the practice of submitting claims as a hedge against the possible invalidity of original claims has been judicially sanctioned. See, for example, *Hewlett-Packard Co. v. Bausch & Lomb, Inc.*, 882 F.2d 1556, 11 USPQ2d 1750 (Fed. Cir. 1989); *In re Altenpohl*, 500 F.2d 1151, 183 USPQ 38 (CCPA 1974); *In re Handel*, 312 F.2d 943, 136 USPQ 460 (CCPA 1963).

In summary, the examiner's rejection of claims 81 through 93 is affirmed; the rejection of claims 1 through 10, 20 through 22, 55 through 80 and 94 through 106 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR 1.136(a). See the final rule notice, 54 F.R. 29548 (July 13, 1989), 1105 O.G. 5 (August 1, 1989).

AFFIRMED-IN-PART.

**U.S. Patent and Trademark Office
Board of Patent Appeals and Interferences**

Ex parte Heymes

No. 93-1646

Decided November 9, 1993

Released January 4, 1994

PATENTS

1. Patentability/Validity — Obviousness — Relevant prior art — Particular inventions (§115.0903.03)

Patentability/Validity — Obviousness — Secondary considerations generally (§115.0907)

Application claims for chemical compounds were properly rejected as obvious under 35 USC 103, since claims are *prima facie* obvious in view of cited references, since record does not show that claimed compounds, which are intermediates to patented compounds having antibiotic properties, have no known utility other than as

³ Compare *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805, 812, note 6 (Fed. Cir. 1986).